

(No Model.)

E. S. HARRIS.

MACHINE FOR TURNING UP THE LIPS OF CHANNELED BOOT OR SHOE SOLES.

No. 343,453.

Patented June 8, 1886.

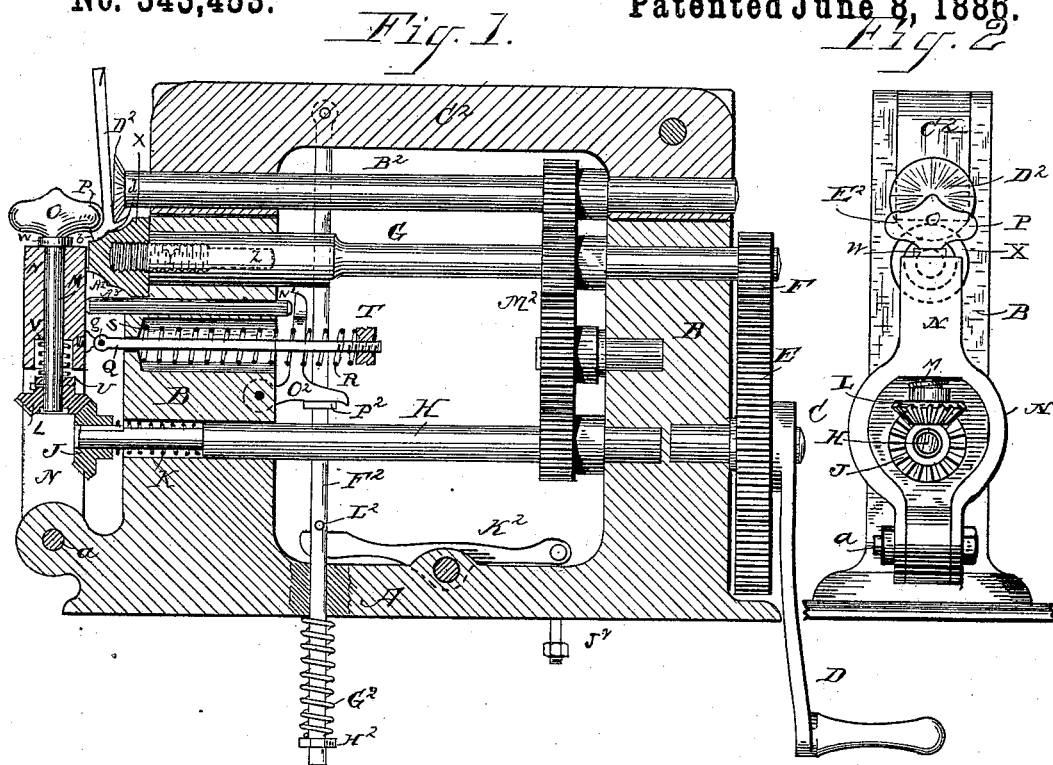


Fig. 3.

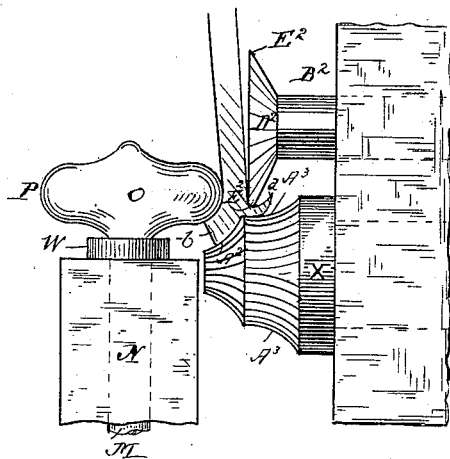
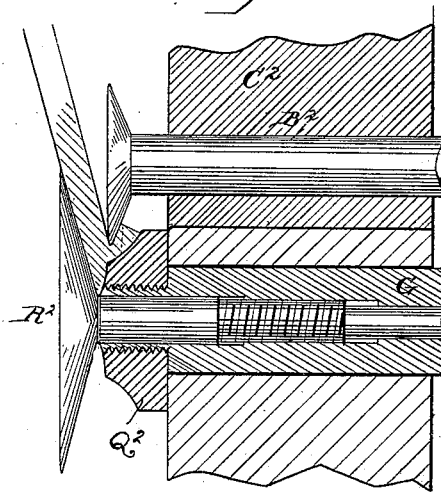


Fig. 4.



Witnesses:

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# UNITED STATES PATENT OFFICE.

ELMER S. HARRIS, OF HAVERHILL, MASSACHUSETTS.

MACHINE FOR TURNING UP THE LIP OF CHanneled BOOT OR SHOE SOLES.

SPECIFICATION forming part of Letters Patent No. 343,453, dated June 8, 1886.

Application filed October 31, 1885. Serial No. 181,514. (No model.)

*To all whom it may concern:*

Be it known that I, ELMER S. HARRIS, of Haverhill, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Turning Up the Lip of Channeled Boot and Shoe Soles, of which the following is a full, clear, and exact description.

This invention relates to a machine more particularly designed for turning up the lips of a boot or shoe sole channeled at and along its edge by slitting the sole on the flesh side at or from one corner of its edge diagonally toward the center of the sole.

The improved machine of this invention is composed in substance of three rotating wheels, disks, or collars, constructed and arranged in such relation to each other as to secure the turning up and out of the two lips of an edge-channeled boot or shoe sole as the same is passed between and in contact with the edges thereof, all substantially as hereinafter described, reference being had to the accompanying plate of drawings, in which—

Figure 1 is a longitudinal vertical section through the frame-work of the machine and some of its operating parts, the other being shown in side elevation. Fig. 2 is an end elevation. Fig. 3 is a side view in detail, on an enlarged scale, of the three operating-wheels of the machine; and Fig. 4 is an enlarged view, partly side and sectional, illustrating the adaptation of the machine shown in Figs. 1 and 2, to the turning up of one lip of an edge-channeled sole from the other lip thereof.

In the drawings, A represents a base-plate, having at either end thereof standards or up-rights B B, making bearings for the operating parts of the machine.

C is a stud arranged horizontally and in one of the standards B.

E is a gear-wheel hung on stud C, and D a crank-handle for convenience in turning wheel E. The gear-wheel E meshes with a pinion gear-wheel, F, of a horizontal shaft, G, arranged above and parallel with a driving-shaft, H, and turning in suitable bearings of the standards B B. The driving-shaft H is connected by a splined gear-wheel, J, backed by a spiral spring, K, surrounding the shaft, with a corresponding gear-wheel, L, rigidly attached to the lower end of an upright spindle,

M, arranged to turn in suitable bearings of a vertical frame, N, hung or jointed by a pivot, a, at its lower end to the base-plate A. This vertical spindle M carries at its upper end a wheel, O, having a circular-shaped edge or periphery, P, which constitutes one of the parts of the machine, upon and in contact with which the thicker edge, b, of the edge-channeled sole is to be brought in the operation of the machine for turning up the lips of edge-channeled soles, and the carrying-frame N therefor is held in position for the proper operation of said wheel O with an elastic or yielding pressure by means of a rod, Q, pivoted to it and passing through one of the standards B B, and therein surrounded by a spring, R, confined in position between an abutment, S, of said standard and a thumb-screw nut, T, applied to the rod. The wheel-carrying spindle M is adapted to have a yielding movement in a vertical direction by means of a spring surrounding it and confined between a shoulder, U, thereof and a shoulder, V, of its bearing within the vertical frame N, and its downward movement is limited by a collar, W, surrounding it, and arranged for a rest upon the upper end of said frame.

The horizontal shaft G, geared with the driving-shaft H, as has been described, at its end toward the wheel O, hereinbefore referred to, has a collar or wheel, X, applied to it, and which is attached by a spindle, Y, adapted for an adjustment longitudinally in and out of the shaft G, by screw-threading the same and the bore of the shaft receiving it, and to be secured in its adjusted position by means of a set-screw, Z, passing through the shaft G, and in position to be butted against it. This wheel or collar X is shaped at and along its periphery to make in one portion, A<sup>2</sup>, thereof a bearing for the inside face of the thicker lip, b, of the edge-channeled sole as the same is being turned up in the machine, and in the other portion, A<sup>3</sup>, thereof a bearing for the inside face of the thinner lip, d, of the edge-channeled sole as the lips are being turned up in the operation of the machine, as will hereinafter appear.

B<sup>2</sup> is a horizontal shaft located above the shaft G, carrying the collar X, as hereinbefore described. This shaft B<sup>2</sup> turns in bearings of an arm, C<sup>2</sup>, hinged to one of the standards B B, and at its end toward the collar X of it car-

ries a wheel,  $D^2$ , having an edge,  $E^2$ , which, with all the parts in operative position, makes a corner as it were, or edge, about which the thinner lip,  $d$ , of the edge-channeled sole can be turned up. The arm  $C^2$ , hinged on the standard  $B$ , as above described, has a rod,  $F^2$ , at one end pivoted to it and passing through and below the bed-plate  $A$ , where it is surrounded by a spring,  $G^2$ , confined between a collar,  $H^2$ , on it and the under side of the bed-plate  $A$ , the whole so as to operate to hold the edge-wheel  $D^2$  in its operative position with an elastic or yielding pressure, and to allow the same to be lifted from its operative position when so desired. To so lift this edge-wheel  $D^2$  from its operative position and against the confining-spring therefor, a treadle (not shown) may be provided and connected by a rod,  $J^2$ , to one end of a lifting-lever,  $K^2$ , of the bed-plate, that at its other end is arranged to work against the under side of a cross-pin,  $L^2$ , of the rod  $F^2$ , and all in a manner to secure, by a depression of the treadle, the lifting of the rod, and through it of the arm  $C^2$ , carrying the shaft, and to which the edged wheel  $D^2$  is attached, and of said wheel.

The circular-edged wheel  $O$  of the vertical spindle  $M$ , and the collar  $X$  of the horizontal shaft  $G$ , and the edged wheel  $D^2$  of the shaft  $B^2$  constitute in this machine the working parts thereof for turning up the lips of the edge-channeled sole, and in operation they severally rotate, the edged-wheel  $D^2$  receiving its motion through gear-wheels  $M^2$ , connecting its shaft with the driving-shaft of the machine. Again, these three operating parts in operative position are situated so that as the edge of the edge-channeled sole travels between them the thinner lip of said channel will be turned up about the edge of the rotating wheel  $D^2$  while the thicker lip is being turned outward between the circular-edged wheel  $O$  and the periphery of the collar  $X$ , opposite thereto, the whole securing a perfect turning up and outward from each other of both lips and molding of the thicker lip of the sole. The circular-edged wheel  $O$  and the thin-edged wheel  $D^2$  have in operation a yielding or elastic movement in relation to each other and to the collar  $X$ , acting in conjunction therewith.

$N^2$  is a rod passing horizontally through one of the standards  $B$ , and in position at one end to abut against the vertical frame  $N$ , carrying the rotating circular-edged wheel  $O$ , and at its other end to be abutted against by a lever,  $O^2$ , hinged to the same standard when said lever is operated upon by a collar,  $P^2$ , of the vertical rod  $F^2$ , connected to the hinged arm  $C^2$ , carrying the shaft of the rotating edged wheel  $D^2$ . Said vertical rod is operated to lift said edge-wheel out of operative position. This arrangement of mechanism enables the circular-edged wheel  $O$  to be moved from its operative position at the same time the edged wheel  $D^2$  is similarly moved, the whole for the purpose of facilitating the introduction of the edge-channeled sole between them and the ro-

tating collar  $X$ , operating in conjunction with them.

Detaching the pin or pivot  $g$  connecting rod  $Q$  to the vertical frame  $N$ , which carries the circular-edged wheel  $O$ , enables said wheel and its frame to be swung out of position and leave the edged wheel  $D^2$  and rotating collar  $X$  to be used independently thereof, if so desired—as, for instance, as shown in Fig. 4. In this figure another collar,  $Q^2$ , is shown as substituted for the collar  $X$  of the other figures, and a disk or wheel,  $R^2$ , axially attached to its carrying-shaft by screwing the stem thereof into the screw-threaded bore of said shaft, and which wheel is located outside of the collar, and the whole so as to operate in conjunction with the rotating edged wheel  $D^2$ , so as to secure the turning up and outward of one lip of an edge-channeled sole, while the other lip is confined within a groove between said collar and the wheel rotating therewith and outside thereof. In substance, as the machine is illustrated in this figure it is so as to render it capable of use for the purposes and in substantially the manner of the machine described and shown in an application for Letters Patent made by me and Lucian M. Nichols, filed December 4, 1884, Serial No. 149,500.

The contact and working faces of the rotating wheels and rotating collar preferably are roughened in any suitable manner—as, for illustration, by grooving the same, as shown—so as to give them increased frictional contact and a better hold upon the surfaces of the lips of the edge-channeled sole and the flesh side of the said sole, and thereby insure the feeding of the sole through the machine between the three several rotating and operating parts thereof.

Having thus described my invention, I claim—

1. In combination, a rotating wheel or collar,  $X$ , having separate bearing-surfaces for the inner face of each of the lips of an edge-channeled sole, a rotating wheel,  $O$ , having a bearing-edge for the outer face of one lip and for the body of said sole, and a rotating wheel,  $D^2$ , having an edge about which to turn one lip of said sole, arranged, the wheels  $X$   $D^2$  alongside of each other and rotating in a corresponding plane, and the wheel  $O$  at one side of and rotating in a plane crossing the plane and between the axes of rotation of wheels  $X$   $D^2$ , all substantially as described, for the purpose specified.

2. In combination, a rotating wheel,  $O$ , having a bearing edge for the outer face of one lip and for the body of an edge-channeled sole, a frame,  $N$ , carrying said wheel  $O$ , a rotating wheel or collar,  $X$ , having separate bearing-surfaces for the inner face of each of the lips of said sole, a rotating wheel,  $D^2$ , having an edge about which to turn one lip of said sole, arranged, the wheels  $X$   $D^2$  alongside of each other and rotating in a corresponding plane, and the wheel  $O$  at one side of and rotating in a plane crossing the plane and between the

axes of rotation of wheels X D<sup>2</sup>, and means, substantially such as described, to operate upon the frame N, and through it to secure to the rotating wheel O a yielding and elastic movement in relation to the sole being operated upon by and between said wheel and its companion wheels X D<sup>2</sup>, all substantially as described, for the purposes specified.

3. A rotating wheel, O, carried by a vertical frame, N, which frame is hinged at its lower end, and confined in position by means of a rod, Q, pivoted to it, and surrounded by a coiled spring, R, confined between a collar thereof and an abutment of its guideway, in combination with a rotating collar, X, and rotating edged wheel D<sup>2</sup>, arranged in relation to said wheel O and to operate in conjunction therewith, substantially as described, for the purpose specified.

4. A rotating wheel, O, carried by a vertical frame, N, which frame is hinged at its

lower end, and confined in position by means of a rod, Q, pivoted to it, and surrounded by a coiled spring, R, confined between a collar thereof and an abutment for its guideway, the slide-rod N<sup>2</sup>, arranged to butt against said vertical frame, lever O<sup>2</sup>, to operate said slide-rod, and operating-rod F<sup>2</sup>, with its abutment P<sup>2</sup>, for the operating-lever K<sup>2</sup>, in combination with a rotating collar, X, and a rotating edged wheel, D<sup>2</sup>, arranged in relation to said wheel O and to operate in conjunction therewith, substantially as described, for the purpose specified.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ELMER S. HARRIS.

Witnesses:

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WM. S. BELLOWES.